Geoarchaeological investigations and an archaeological treatment plan for 151 sites in the Grand Canyon, Arizona. Treatment plan implementation, including checkdam installation and maintenance at the recommended sites.

The assessment of erosion threats and information potential for 151 historic properties along the Colorado River corridor has been completed through a cooperative ecosystem study unit (CESU) agreement between the Bureau of Reclamation (Reclamation) and Utah State University (USU). The resulting treatment plan assesses and documents the information potential of each site as well as identifies the most appropriate method for preservation in place through erosion-control or data recovery (Pederson, Peterson et al. 2006; Damp et. al 2007). Determination of the appropriateness of erosion-control structures was based on a detailed understanding of on-site erosion processes, patterns affecting sites, and additional erosion processes data to make informed decisions. The plan makes specific recommendations related to archaeology and geology for the most appropriate treatment on a site-by-site basis. Treatment recommendations include the following: baseline statements regarding condition, the information potential and integrity of each site, and descriptions of how erosion is impacting site integrity. In general, sites observed as geomorphologically stable with excellent preservation potential (n=68) received a "no action" recommendation (Damp 2007).

Brush linings, small checkdams and replanting native vegetation are all methods recommended to effectively catch sediment and slow erosion (Damp et al. 2007; Pederson et al. 2006). Implementation of these techniques has been recommended through the Reclamation contracted treatment plan at 36 locations. This recommendation is in addition to the continued monitoring and maintenance of the sites already containing checkdams as a mitigation measure. A total of 51 sites are recommended for erosion control structure implementation in the Reclamation treatment plan (Damp 2007).

In addition to monitoring and maintenance of erosion control structures, this project proposes to conduct systematic monitoring associated with implementation of the treatment plan. This includes visitation to locations where data recovery has occurred to ensure that no additional cultural materials have been exposed. All implemented work would be conducted under the direct arrangement of the National Park Service, Grand Canyon National Park with approval by Reclamation. Priority would be given to sites where information potential and erosion vulnerability are highest, as determined and outlined in the Reclamation

treatment plan. All work would be conducted under the guidance of the Zuni Conservation Team program based on over ten years experience working along the river corridor installing and maintaining checkdams for the NPS. Field work would be coordinated with ongoing NPS field activities so that this work would be conducted on a regularly scheduled resource river trip. The project consists of three phases, field preparation, field work, and post field and is described below.

Damp, J., Joel Pederson, Gary O'Brien (2007). Geoarchaeological Investigations and an Archaeological Treatment Plan for 151 Sites in the Grand Canyon, Arizona. Logan, Utah State University: 501.

Pederson, J., P. A. Peterson, et al. (2006). "Gullying and Erosion Control at Archaeological Sites in Grand Canyon, Arizona." Earth Surface Processes and Landforms **31**: 507-525.

PHASE I field preparation
Review treatment plan to identify high priority sites for new erosion control structures
Gather field forms
Select appropriate photographs of existing structures and active drainages for replication
Organize field gear and purchase supplies
Conduct pre-trip logistics

PERSONNEL
Database specialist
NPS Archeologist

COST

Film/supplies	$100.00
Database specialist	$350.00
NPS archeologist	$700.00
SUBTOTAL	$1150.00

PHASE II conduct field work
Comparison of previous photos/forms/treatment recommendations to current condition
Conduct checkdam monitoring (at existing sites)
Identification and assemblage of most appropriate materials
Conduct checkdam maintenance (at new locations or sites where maintenance is necessary)
Complete infield paperwork
Document work through photographs and on maps and descriptions

PERSONNEL
Zuni Conservation Team Member(s)
Hualapai Tribe Member
NPS Archeologist
GIS specialist
River guide
Shuttle driver

COST

NPS personnel	$ 5,500.00
Tribal personnel	$16,500.00
Boat shop support	$ 6,500.00
Shuttle	$ 500.00
SUBTOTAL	$29,000.00

PHASE III post field work
Returning all forms, photos, and gear
Processing film
Conduct data entry of all data collected on field forms
Photographic database data entry
Scan photographs/digitally archive
Edit field forms and file in S. Rim files
Compile and produce maps
Compile information and produce a report

PERSONNEL
Database specialist

NPS Archeologist
GIS Specialist

COST	
NPS Personnel	$5500.00
Database Specialist	$700.00
Film Processing	$100.00
SUBTOTAL	$6300.00

TOTAL COST	**$36,450.00**